

GENERIC · POWERTRAIN

P0A41

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A41

Drive Motor A Position Sensor Circuit Low

P0A41 indicates that the hybrid or electric vehicle control module has detected an abnormally low voltage signal from the position sensor circuit of drive motor A, which is typically the main traction motor. The sensor reports the rotor's angular position to the motor controller, and a low signal means the controller cannot reliably determine the motor's position for proper commutation and torque control.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Professional	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or hybrid system warning light, often with no other noticeable symptoms
- Reduced power or a limp-home mode that limits vehicle speed
- The vehicle may refuse to start or shift into gear, especially in hybrids where the motor is part of the drivetrain
- Rough running, shuddering, or hesitation during acceleration if the motor is used for propulsion
- In some cases, the engine may start but the electric drive may be disabled, forcing the gasoline engine to run continuously

Common causes, most likely first

- 1 A faulty motor position sensor (resolver) or its internal wiring
- 2 Damaged, chafed, or corroded wiring in the sensor circuit, particularly at connectors or where the harness bends
- 3 A poor electrical connection at the sensor or controller connector, such as loose pins or water intrusion
- 4 A failed motor control module or inverter assembly that cannot read the sensor signal correctly
- 5 Mechanical damage to the sensor target wheel or rotor that disturbs the signal
- 6 Extremely low or inconsistent sensor supply voltage or ground, often due to a weak battery or charging system issue



How to diagnose and fix it

- 1 Verify the battery voltage and charging system are within specification, as low system voltage can skew sensor readings
- 2 Inspect the motor position sensor harness and connectors for damage, corrosion, or loose pins, and repair as needed
- 3 Measure the sensor circuit voltage and resistance with a multimeter and compare to the manufacturer's specifications
- 4 Perform a wiggle test on the wiring while monitoring sensor signal with a scan tool to detect intermittent faults
- 5 If the sensor is accessible, check its mounting and air gap, and replace the sensor if it fails electrical tests
- 6 Substitute a known-good sensor or use a lab scope to confirm the signal waveform is clean and consistent
- 7 If all external checks pass, follow the manufacturer's diagnostic flow for the motor control module or inverter, which may require replacement and programming

Before you replace the motor position sensor

- A low signal code often results from a simple wiring issue or connector problem rather than a failed sensor, so always inspect the harness first.
- On many hybrids, the motor position sensor is integrated into the motor assembly and cannot be replaced separately, making diagnosis of the circuit even more critical before condemning expensive components.
- A weak 12-volt battery or a failing DC-DC converter can cause erratic sensor signals and set this code without any fault in the sensor itself.
- The code can be set by a momentary glitch during engine start or a low-voltage event, so clearing it and test-driving may reveal whether the fault is persistent.
- Related codes such as P0A3F or P0A45 may also be present, indicating a broader issue with the motor position sensor circuit or motor control system.

Can I keep driving with P0A41?

Do not continue driving with this code if the vehicle is in limp mode or the hybrid system is disabled, as you may lose power unexpectedly. If the vehicle drives normally, limit driving to a short distance to a repair shop, avoiding heavy acceleration or high speeds.

Tools that help

- OBD-II scan tool with hybrid/EV capability
- Digital multimeter
- Oscilloscope for signal waveform analysis
- Wiring diagram and service information for the specific vehicle
- Insulation piercing probes or back probe pins



Reading P0A41

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- A** Hybrid propulsion.
- 41** The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A40** Drive Motor A Position Sensor Circuit Range/Performance · **P0A42** Drive Motor A Position Sensor Circuit High · **P0A45** Drive Motor B Position Sensor Circuit · **P0A46** Drive Motor B Position Sensor Circuit Range/Performance

See it working

Watch the animated explainer [How Regenerative Braking Works in Electric Cars](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0a41/>

